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NEW TRENDS IN TECHNOLOGY AND THEIR APPLICATIONS

Paper submitted by New Zealand**

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INTRODUCTION

The following is a summary of the principal activities in which investigations or trials relating to the application of new technology are currently being undertaken in New Zealand.

GEODESY

A project has commenced to assess New Zealand Geodetic Datum 1949 (NZGD49). This project will determine the present shape of NZGD49, its relationship to World Geodetic System 1984 (WGS84) and its suitability for the future needs of surveying and mapping in New Zealand.

New Zealand is subject to continuous and widespread tectonic earth deformation. A mechanism is required to maintain a geodetic survey system in the presence of such deformation. This is also being investigated.

A high precision geoid model for New Zealand is required to allow efficient use of new technology such as the Global Positioning System (GPS) for heighting.

Future links between geodetic, topographic and cadastral digital databases are being planned.

SURVEYING AND MAPPING

Efficient new kinematic methods of GPS surveying are being investigated.

A network of GPS base stations is being extended to provide infrastructure support for GPS surveying and navigation.

New Zealand will participate in an Australasian GPS Integrity Monitoring network. This will provide immediate or archived information on the status of GPS satellites in the region.

Computer-assisted procedures are being developed and implemented for a variety of cartographic products. High resolution, large format film plots are being produced for offset printing of colour maps using input data from the department's digital spatial databases. Initial digital workflows are being refined to combine both vector data and raster data (orthophotos and satellite images) for high quality printed colour map outputs. Investigations are continuing into the most efficient hardcopy colour proofing options for digital mapping workflows.

PHOTOGRAMMETRY AND REMOTE SENSING

The use of GPS to provide airborne photo control for aerial mapping has been trialed by New Zealand. The technique was applied on an Antarctic mapping project in conjunction with United States Geological Survey. Further studies will be made in New Zealand to reduce photo control requirements and costs.

A pilot project is underway to assess the viability of establishing a national spatial land cover database by classifying Landsat TM satellite imagery.

Image auto-correlation techniques are being tested for the generation of digital terrain models. An assessment is also being made of the ability of new soft photogrammetry equipment to measure control points for aerial photography.

DIGITAL DATABASE, GEOGRAPHIC AND LAND INFORMATION SYSTEMS

A project has commenced to assess the update mechanism for the national topographic database. The primary objectives are to reduce the costs and improve the currency of digital topographic data. The initial focus will be on the viability of using digitally generated orthophotos for pre field-check revision.

Scanning/vectorising procedures are being used to convert the 1:50,000 topographic map series to digital form. A suite of software tools has been developed to provide for more rigorous checking of post-vectorisation editing and contour tagging.

Procedures are being developed for the production of 3-D relief models using data from the digital topographic database. Images of these models are being used in cartographic products such as the Historical Atlas of New Zealand.

Software has been developed to provide direct user graphic access to national vector cadastral data from an Oracle database.

FURTHER INFORMATION

Further information on any of the above items is available on request. Correspondence should be addressed to:

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